

**A Comparative Study of Hemodynamic
Responses to Lidocaine Local Anesthesia
with Adrenaline and Stress before and after
Tooth Extraction
(Clinical study)**

**A thesis submitted to the council of the College of Dentistry,
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**By
Ali Tareef Noaman
B.D.S**

**Supervised by
Assist. Prof. Dr. Lekaa M. Ibraheem
B.D.S. M.Sc.**

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Abstract

The purpose of this clinical study was the comparison of the hemodynamic effects of the epinephrine-containing local anesthetics and stress after tooth extraction.

This study included 40 healthy young non-smoker subjects with no history and clinical manifestations of hypertension or any cardiovascular disease.

Those subjects had been divided into two groups. The 1st group included 20 patients whom required lower 1st molar tooth extraction, and the second group included 20 volunteers that had been injected with local anesthesia without any surgical intervention.

The ages of the patients ranged from 18-33 years (average 25.75 years), while the ages of the volunteers ranged from 24-30 years (average 27.5 years).

Each group had been subdivided into two subgroups, one subgroup was injected with epinephrine-containing local anesthesia and the other subgroup was injected with plain local anesthesia.

The Systolic blood pressure, the diastolic blood pressure, and the heart rate were recorded in this study among different time intervals at 5, 10, 15, 25, 35 minutes after the intraoral injection of the local anesthetics.

The results of this study showed that there were no significant changes had occurred in the systolic blood pressure among different time intervals in all groups. However, a slight increase in the systolic blood pressure was noted in both patients' subgroups during the dental surgery period.

For the diastolic blood pressure a significant decrease had occurred in patients' subgroup that injected with epinephrine-containing local

anesthetics during the local anesthesia period at 10 minutes. Also, a significant increase was noted in the diastolic blood pressure in patients group that injected with plain local anesthetics during the dental surgery period at 15, 25 minutes.

For the heart rate, no significant changes had occurred in all groups.

However, an insignificant increase had occurred in both volunteers and patients subgroups that injected with epinephrine-containing local anesthetics immediately after injection at 5 minutes.

The results of this study showed that different time courses were found between the responses of blood pressure and that of heart rate.

The blood pressure response might have been attributable primarily to the activation of the sympathetic nervous system, and thus would have reached a peak during dental surgery, whereas the response of heart rate might have been primarily due to the administration of epinephrine in the local anesthetic, and thus would have peaked after administration of local anesthesia. However, the combined effects of activation of the sympathetic nervous system and administration of epinephrine in local anesthetic probably contributed to the responses of these variables.